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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,524	11/05/2003	Koubun Sakagami	R2184.0272/P272	5931
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DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER GOMA, TAWFIK A	
			ART UNIT 2627	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/700,524

Applicant(s)

SAKAGAMI, KOUBUN

Examiner

Tawfik Goma

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This action is in response to the RCE filed on 7/27/2007.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14 and 15 are indefinite because the limitation “wherein the information recording medium determines whether the test data is normal...” is indefinite with respect to the limitations of the product claimed. That is, claims 14 and 15 as provided indicate that the medium itself performs the determination of whether the test data is normal, which is indefinite with respect to applicant’s disclosure and general knowledge of the art. The medium stores the test data and the test data is used with a device which performs the determination. The claims will be interpreted to mean that test data stored on the medium is used by a device to determine whether it is normal.

Further regarding claims 14 and 15, the limitations with respect to the use of the test data on the medium (“determines whether the test data is normal, and wherein determining whether the test data is normal comprises determining whether a distribution of the test data is within a predetermined range.”) are indefinite because they fail to further limit the product claimed.

Limitations as to the use of the test data do not limit the medium that holds the test data, and it is unclear whether applicant is intending to claim the information recording medium or the method of using the information recording medium. As such, claims 14 and 15 are interpreted to claim an information recording medium with test data as claimed and not the method of using the test data on the information recording medium provided in the amendment to the claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Powelson (US 6940790).

Claims 14 and 15 are interpreted in view of the 35 U.S.C. 112, 2nd paragraph, rejections as discussed above.

Regarding claim 14, Powelson discloses an information recording medium comprising: multi-level data converted from binary data (fig. 4b), and test data used in reproducing the multi-level data (820, fig. 8a and col. 22 lines 7-18), wherein the test data includes combination of data comprising same numeric series (col. 8 lines 30-34).

Regarding claim 15, Powelson discloses an information recording medium comprising: multi-level data converted from binary data (fig. 4b), and test data used in reproducing the multi-level data (820, fig. 8a and col. 22 lines 7-18), wherein the test data includes combination of data comprising same numeric series (col. 8 lines 42-46).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powelson (US 6940790) in view of Fujita et al (US 546420).

Regarding claims 1 and 13, Powelson discloses an information recording/reproducing apparatus, comprising: a binary/multi-level data converting unit converting binary data into multi-level data (404, fig. 4a, and fig. 4b); a test data generating unit generating test data forming part of the multi-level data (202, fig. 2 and col. 10 lines 21-25); a data recording unit recording the multilevel data including the test data to an information recording medium (408, fig. 4a, 4b and col. 10 lines 21-25); a signal reproducing unit outputting reproduction signals of the multi-level data including the test data from the information recording medium (208, fig. 5); a test data examining unit examining the reproduction signals of the multi-level data including the test data to determine whether the test data is normal (820, fig. 8a and col. 22 lines 7-18); a waveform equalization unit equalizing a waveform of the examined test data when the test data examining unit determines that the test data is normal (col. 12 lines 61-67 thru col. 13 lines 1-5); and a multi-level determining unit determining multi-level data by referring to a pattern table generated using the examined test data (fig. 4b and col. 13 lines 7-17).

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Further regarding claims 1 and 13, Powelson fails to disclose wherein determining whether the test data is normal comprises determining whether a distribution of the test data is within a predetermined range. Powelson discloses finding a mean squared difference between the target data and the recovered data but fails to disclose using a distribution of the recovered data for the evaluation. In the same field of endeavor, Fujita discloses using a distribution of recovered data to calculate thresholds used in evaluating the data (col. 4 lines 60-67 through col. 5 lines 1-7). It would have been obvious to one of ordinary skill in the art to use a distribution of the test data in order to determine if the data is normal. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to use a distribution of data in order to compensate for abnormal differences in reflection values that may result from part of the test data.

Regarding claim 2, Powelson further discloses wherein the test data examining unit includes: a data distinguishing unit categorizing an input data frame into a test frame including the test data and a data frame (col. 6 lines 50-57); a distribution computing unit computing a frequency distribution of values for the reproduction signals of the test data (fig.7 and col. 16 lines 34-43); a feature amount detection unit detecting a feature amount of the computed frequency distribution (col. 17 lines 11-20); a comparing unit deciding whether the test data is normal by comparing the detected feature amount with a prescribed value (col. 21 lines 46-51); and a memory unit storing the values of the reproduction signals of the test data (col. 16 lines 44-49).

Regarding claim 3, Powelson further discloses wherein when the data distinguishing unit determines that the input data frame is the test frame, the waveform equalizing unit and the

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multi-level determining unit stop operating, the distribution computing unit starts computing the frequency distribution of the values for the reproduction signals of the test data, and the memory unit stores the test data (fig 8b).

Regarding claim 4, Powelson further discloses wherein when the comparing unit decides that the test data is normal, effective data in the memory unit is output to the waveform equalization unit for determining a coefficient of a filter of the waveform equalization unit according to automatic equalization algorithm, and the effective data is also output to the multi-level data determining unit for generating the pattern table (col. 12 lines 42-67 thru col. 13 lines 1-17).

Regarding claim 5, Powelson further discloses wherein the multi-level data determining unit includes: a pattern table generating unit generating the pattern table; and a multi-level data detecting unit detecting the multi-level data by searching through the pattern table for a pattern which is similar to effective data in the memory unit (fig. 4b and col. 6 lines 58-67 thru col. 7 lines 1-4).

Regarding claim 6, Powelson further discloses wherein when the test data examining unit determines that the test data is normal, the multi-level data detecting unit outputs the effective data in the memory unit as multi-level data (figs. 8a-b).

Regarding claim 7, Powelson further discloses wherein when the comparing unit decides that the test data is abnormal, the test data from the information recording medium is examined again and input to the distribution computing unit (820-822, fig. 8a)

Regarding claim 8, Powelson further discloses wherein the test data is not used when the test data is again decided to be abnormal (822, fig. 8a).

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Regarding claim 9, Powelson further discloses wherein one or more test data from the information recording medium is examined, wherein when the feature amount of the test data surpasses a prescribed range, the value of the reproduction signals of the test data surpassing the prescribed range is excluded (824, fig. 8a), wherein an average of the values of the reproduction signals of the test data except for the excluded test data is obtained for detecting the multi-level data (col. 22 lines 37-40).

Regarding claim 10, Powelson further discloses wherein the test data is allocated before and after the multi-level data (col. 10 lines 21-32).

Regarding claims 11, Powelson further discloses wherein the test data includes combinations of data comprising same numeric series (col. 8 lines 30-34).

Regarding claims 12, Powelson further discloses wherein the test data includes combinations of data comprising different numeric series (col. 8 lines 42-46).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shimizu et al (US 2003/0112667) discloses an information reproducing method which judges a multi-valued level of a cell based on a previous and next cell based on the distribution of the data.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tawfik Goma/  
9/25/2007

/William Korzuch/  
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